

SENSITIVITY OF TEFF (*ERAGROSTIS TEF*) TO VARIOUS HERBICIDES. Scott Feldt, Christopher L. Schuster, Brian L. S. Olson, and J. Anita Dille, Undergraduate Student, Graduate Student, Assistant Professor, Associate Professor, Department of Agronomy, Kansas State University, Manhattan, KS 66502.

Teff is an indigenous cereal crop of Ethiopia and is gaining interest in the U.S. as a gluten-free replacement for wheat. Field studies were conducted near Manhattan and Colby, KS in 2006 to evaluate the response of teff to various preemergence (PRE) and postemergence (POST) herbicides. PRE applications of atrazine (1.1 or 2.2 kg ha⁻¹) or *S*-metolachlor (2.13 kg ha⁻¹) were applied at sowing and POST applications of 2,4-D (3.59 kg ha⁻¹), dicamba (3.59 kg ha⁻¹), bromoxynil (0.42 kg ha⁻¹), carfentrazone (0.03 kg ha⁻¹), halosulfuron (0.04 kg ha⁻¹), prosulfuron (0.03 kg ha⁻¹), mesotrione (0.11 kg ha⁻¹), sethoxydim (0.32 kg ha⁻¹), and glyphosate (0.84 kg ha⁻¹) were applied when teff was 10-cm tall. Teff injury was visually evaluated one and eight weeks after treatment (WAT) on a scale of 0 (no injury) to 100 (mortality). Teff was harvested at maturity to determine yield. Data were combined over locations due to a lack of interactions. Atrazine and *S*-metolachlor applied PRE resulted in greater than 90% injury of teff at 8 WAT. POST applications of 2,4-D, dicamba, bromoxynil, carfentrazone, halosulfuron, and prosulfuron resulted in less than 5% injury of teff at 8 WAT. Mesotrione, sethoxydim, and glyphosate resulted in yield reductions of 30, 50, and 99%, respectively, as compared to the weed-free check. Substantial seed loss during harvest indicated that teff production could possibly lead to teff becoming an annual weedy grass in corn and grain sorghum fields. Therefore, a follow-up study was performed in the greenhouse at Manhattan to determine the early season competitiveness of teff with corn and grain sorghum. Soil was recovered from the upper 2 cm portion of 0.06 m² areas in the field following harvest, spread in a polypropylene tray containing a 1:1 (v/v) mixture of sand:Morril loam soil, and placed in the greenhouse. Corn or grain sorghum seed were planted in the trays and treated PRE with atrazine (1.1 or 2.2 kg ha⁻¹), mesotrione (0.22 kg ha⁻¹), or *S*-metolachlor (2.13 kg ha⁻¹). Trays left untreated indicated that approximately 90 seeds of teff per 0.06 m² were lost during harvest. Corn and grain sorghum biomass was reduced by 10 and 13%, respectively, by 3 weeks after emergence (WAE) when trays were untreated. Atrazine, mesotrione, or *S*-metolachlor provided greater than 98% control of teff at 3 WAE and resulted in no reductions in corn or grain sorghum biomass. Results indicate that numerous POST herbicidal compounds are safe for use on teff with minimal crop injury at 8 WAT. Substantial harvest loss of teff seed will require corn or grain sorghum fields to be treated with a PRE herbicide to control emerging teff plants.